WHAT WE CLAIM ARE:

1. A method of manufacturing a semiconductor device comprising the steps of:

forming a gate electrode conductive film on a surface of a semiconductor substrate on which first and second sections are defined, field effect transistors having channel lengths different from each other being respectively formed on the first and second sections;

forming first and second gate mask patterns made of a first insulating material on the gate electrode conductive film on the first and second sections;

forming sidewall spacers on sidewalls of the first and second gate mask patterns, the sidewall spacer being made of a second insulating material having an etching resistance different from the first insulating material;

covering the second section with a mask pattern;

removing the sidewall spacer on the sidewall of the first gate mask pattern by using the mask pattern as a mask;

removing the mask pattern; and

etching the gate electrode conductive film to leave first and second gate electrodes on the first and second sections, by using as a mask the first and second gate mask patterns and the sidewall spacer left on the sidewall of the second gate mask pattern.

2. A method of manufacturing a semiconductor device according to claim 1, wherein said step of forming the first and second gate mask patterns comprises the steps of:

forming a gate mask layer made of the first insulating material on the gate electrode conductive film;

forming a resist film on the gate mask layer;

exposing and developing the resist film to leave a first resist pattern corresponding to the first gate mask pattern, a second resist pattern corresponding to the second gate mask pattern, and a third resist pattern disposed on a straight line extending from the second gate mask pattern, one end of the second resist pattern facing one end of the third resist pattern, the first to third resist patterns being set to a minimum patterning line width of said exposing and developing step, and a distance between the end of the second resist pattern and the end of the third resist pattern being set to a minimum removing width of said exposing and developing step; and

etching the gate mask layer to leave first to third gate mask patterns corresponding to the first to third resist patterns, by using the first to third resist patterns as a mask.

3. A method of manufacturing a semiconductor device according to claim 2, wherein:

in said step of forming the first to third gate mask patterns, the gate mask layer is etched so that a line width of each of the first to third gate mask patterns is narrower than a line width of each of the first to third resist patterns; and

in said step of forming the sidewall spacers, the sidewall spacers are formed so that a total line width of the second gate mask pattern and the sidewall spacer formed on the sidewall of the second gate mask pattern becomes approximately equal to a line width of each of the first to third resist patterns just after the development.

4. A semiconductor device comprising:

a first field effect transistor having a gate electrode formed on a first section of a semiconductor substrate;

a second field effect transistor having a gate electrode formed on the second section of said semiconductor substrate; and

a ridge structure made of insulating material formed on an upper surface of the gate electrode of said second field effect transistor, said ridge structure extending along side edges of the gate electrode.

5. A semiconductor device according to claim 4, wherein a distance between two portions of said ridge structure extending along a direction crossing a gate length direction is approximately equal to a gate length of said first field effect transistor.

6. A semiconductor device according to claim 4, further comprising a metal silicide film covering an upper surface of the gate electrode of said second field effect transistor excepting the upper surface not formed with said ridge structure.

7. A method of manufacturing a semiconductor device comprising the steps of:

forming a gate electrode conductive film on a surface of a semiconductor substrate on which first and second sections are defined, field effect transistors having channel lengths different from each other being formed on the first and second sections;

covering an upper surface of the gate electrode conductive film on the second section with a first mask film made of a first material;

forming a second mask film on the gate electrode conductive film on the first section and on the first mask, the second mask being made of second material having an etching resistance different from the first material;

forming resist patterns corresponding to gate electrodes on the second mask film on the first and second sections;

etching the second and first mask films to leave a first gate mask pattern of the second mask film on the first section and a second gate mask pattern having a lamination structure of the first and second mask films on the second section, by using the resist patterns as a mask;

side-etching a portion of the second mask film constituting the first and second gate mask patterns; and

etching the gate electrode conductive film to leave first and second gate electrodes on the first and second sections, by using the first and second gate mask patterns as a mask.

8. A method of manufacturing a semiconductor device according to claim 7, wherein in said step of forming the resist patterns, two resist patterns whose ends facing each other are formed on the first section, a width of the resist pattern formed on the first section is a minimum patterning line width of said step of forming the resist patterns, and a distance between the ends of the two resist patterns on the second section is a minimum removing width of said step of forming the resist patterns.

9. A semiconductor device comprising:

a first field effect transistor having a gate electrode formed on a first section of a semiconductor substrate;

a second field effect transistor having a gate electrode formed on a second section of said semiconductor substrate;

a first film made of a first material and disposed on the gate

electrode of said second field effect transistor, an outer periphery of said first film being aligned with side edges of the underlying gate electrode;

a second film disposed on said first film, an outer periphery of said second film positioning inside the outer periphery of said first film, and said second film being made of a second material having an etching resistance different from the first material; and

a third film disposed on the gate electrode of said first field effect transistor, an outer periphery of said third film being aligned with side edges of the underlying gate electrode, said third film being made of the second material.

10. A semiconductor device according to claim 9, wherein a width of said second film along a gate length direction is approximately equal to a width of said third film along the gate length direction.